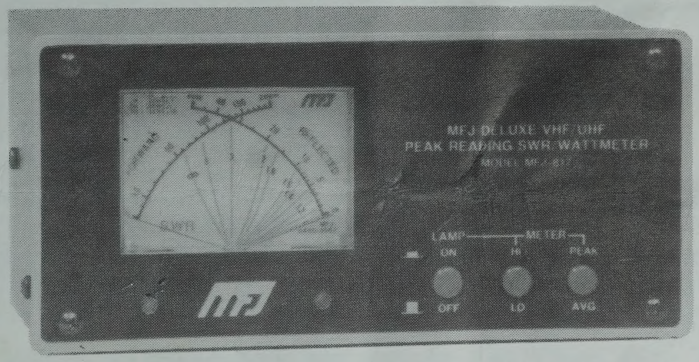
MFJ 144/440 MHz PEAK READING SWR/WATTMETER



MODEL MFJ-817
INSTRUCTION MANUAL

CAUTION: Read All Instructions Before Operating Equipment

MFJ ENTERPRISES, INC.

P.O.BOX 494, MISSISSIPPI STATE, MS 39762, USA

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MFJ-817 144/440 Mhz SWR/WATTMETER

The MFJ-817 144/440 MHz PEAK READING SWR/WATTMETER utilizes a cross-needle meter so that the peak or average forward power, reflected power and the SWR can be read simultaneously. This unit is designed to operate at the 144 and 440 MHz bands. Power readings are made on two different scales. The low scale reads from 0 to 20 watts forward power and from 0 to 5 watts reflected power. The high scale reads from 0 to 200 watts forward power and 0 to 50 watts reflected power. SWR is read from 1:1 to 5:1.

INSTALLATION

1. Connect the coax connector labeled TRANSMITTER to the transmitter with RG-8 or RG-58/U cable. Use PL-259 male connectors.

2. Connect the coax connector labeled ANTENNA to the antenna with RG-58/U or RG-8/U cable. Use PL-259 male connectors.

3. If a lighted meter is desired, a 12vdc power supply such as the MFJ-1312 must be connected. Use a standard 2.5mm plug with the tip of the plug being positive. The METER LAMP ON/OFF switch will light the meter lamp when pushed in.

FORWARD & REFLECTED POWER

1. Set the desired power range by using the switch on the front panel labeled METER HIGH/LOW. The full-scale readings on the HIGH range are 200 watts forward and 50 watts reflected power. Full-scale readings on LOW are 20 watts forward and 5 watts reflected.

2. The peak reading feature may be switched on/off by using the push button on the front panel labeled METER AVG/PEAK.

SWR MEASUREMENT

SWR is indicated by the crossing point of the two meter pointers. While transmitting, read the SWR from the SWR line nearest the crossing point.
NOTE: No SWR sensitivity adjustment is needed at any range.

CALIBRATION

The MFJ-817 has been calibrated at the factory. If it should ever need to be recalibrated, follow this procedure:

EQUIPMENT NEEDED:

1. Transmitter capable of supplying enough power to obtain 1/2 to full scale reading at 144 MHz.
2. Transmitter capable of supplying enough power to obtain 1/2 to full scale reading at 440 MHz.
3. 50 Ohm dummy load capable of operating at 144 MHz & 440 MHz, capable of handling the full power that the transmitter can put out and having better than a 1.15:1 SWR.
4. A power meter of known accuracy. The calibration will only be as good as this reference meter.
5. 50 Ohm cables capable of handling the power. RG-58/U or RG-8/U is recommended. DO NOT USE RG-59 OR RG-11.

METER CALIBRATION- refer to the diagrams for the trimpot and trimmer locations.

1. Remove the top of the MFJ-817.

FORWARD POWER:

2. Connect the equipment as shown in the TEST SETUP diagram using the 144 MHz transmitter. Set the METER HIGH/LOW for the low scale. Transmit about 10 watts as indicated on the reference meter. Adjust trimpot #2 to set 10 watts on the forward power scale.
3. Next set the push button for the HIGH power scale. Transmit about 100 watts as indicated on the reference meter. Adjust trimpot #1 to set 100 watts on the forward scale.
4. Connect the test setup to the 440 MHz transmitter. Set the push button for the HIGH power scale. Transmit about 100 watts as indicated on the reference meter. Adjust trimmer #1 to set 100 watts on the forward scale.
5. Repeat procedures 3 and 4 until the meter has the correct reading on both bands.

REFLECTED POWER

6. Connect the equipment as shown in TEST SETUP diagram using the 144 MHz transmitter. Swap the antenna and transmitter connectors on the MFJ-817 such that the dummy load is connected to the TRANSMITTER connection on the MFJ-817 and the feedline from the reference meter is connected to the ANTENNA connector on the MFJ-817. Set the METER HIGH/LOW push button for the low scale. Transmit about 2 watts as indicated on the reference meter. Adjust trimpot #4 to set 2 watts on the reflected power scale.
7. Next set the push button for the HIGH power scale. Transmit about 20 watts as indicated on the reference meter. Adjust trimpot #3 to set 20 watts on the reflected scale.
8. Connect the test set up to the 440 MHz transmitter. Set the push button for the HIGH range. Transmit about 20 watts as indicated on the reference meter. Adjust trimmer #2 to set 20 watts on the reflected scale.
9. Repeat procedures 7 and 8 until the meter has the correct reading on both bands.

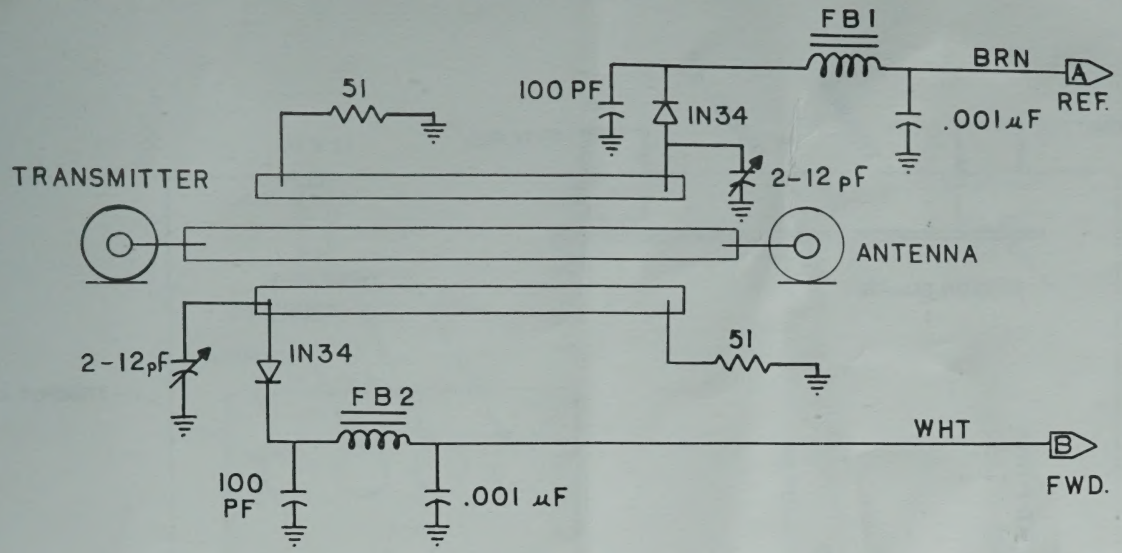

FIGURE 1 - MFJ-817 SENSOR BOARD

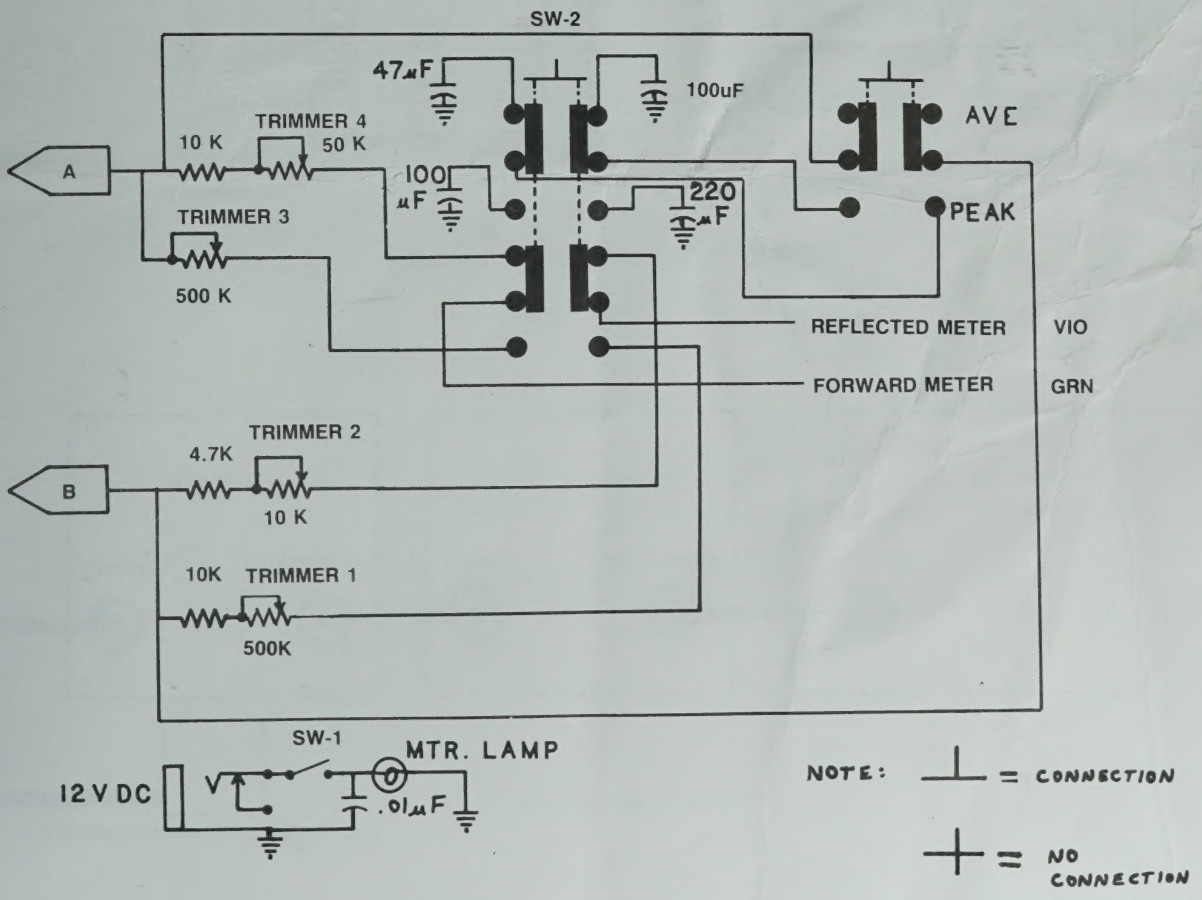

FIGURE 2 - MFJ-817 METER BOARD

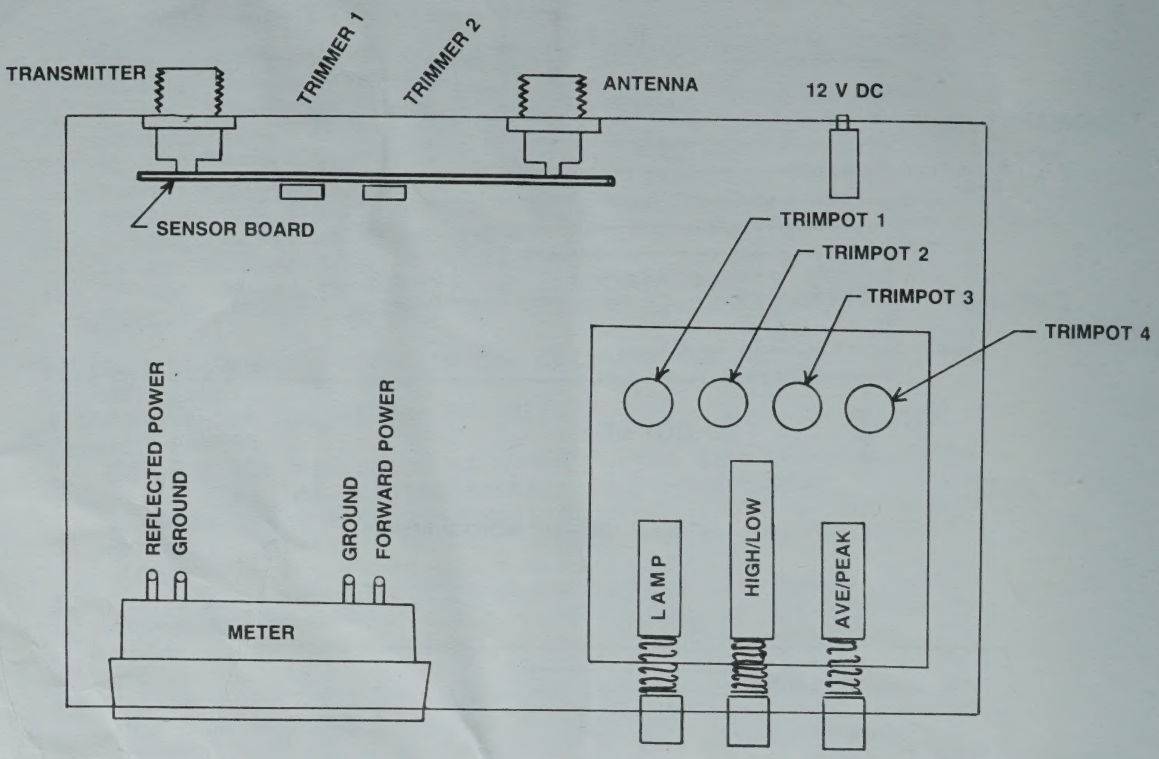

FIGURE 3 - MFJ-817 COMPONENT LAYOUT

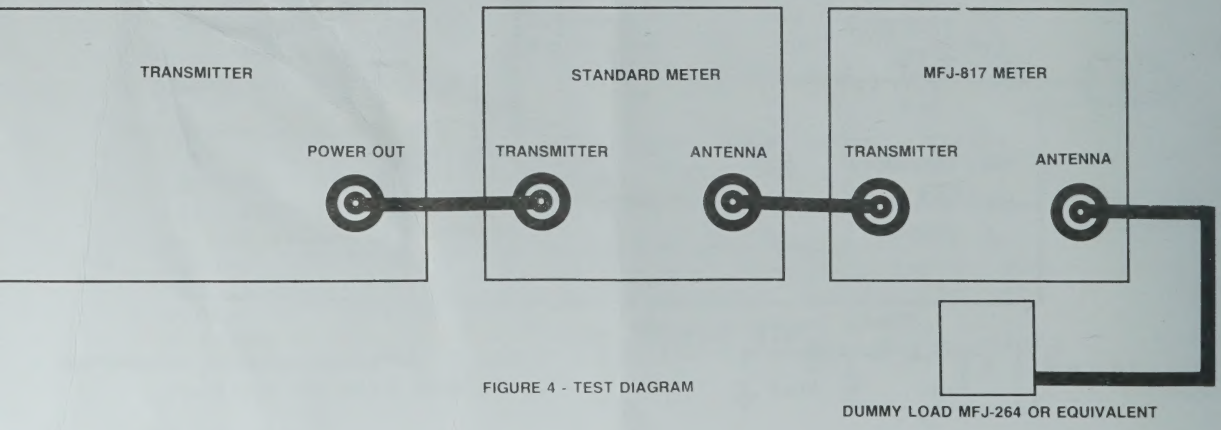

FIGURE 4 - TEST DIAGRAM

FULL 12 MONTHS WARRANTY

MFJ Enterprises, Inc. warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. to be free of defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, cancelled check, credit card or money order receipt, etc.) describing the product to establish the validity of warranty claim and must submit the original or a machine-reproduction of such proof-of-purchase to MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery of proof-of-purchase shall be cause to void any and all warranty terms immediately.
2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashier's check or money order for **$10.00** covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ product under warranty upon request. A dated proof-of-purchase and a **$10.00** personal check, cashier's check or money order must be provided to cover postage and handling.
4. This warranty is **NOT** void for owners who attempt to repair defective units. Technical consultation is available by calling (601) 323-5869.
5. This warranty does not apply to kits sold or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided **only the wired and tested PC board is returned.** Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepaired.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ product.
8. **Out-of-Warranty Service:** MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is delivered prepaid. All charges will be shipped COD to the owner.
9. This warranty is given in lieu of any other warranty express or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvement in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to **MFJ Enterprises, Inc., 921A Louisville Road, Starkville, Mississippi 39759, USA** and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
12. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

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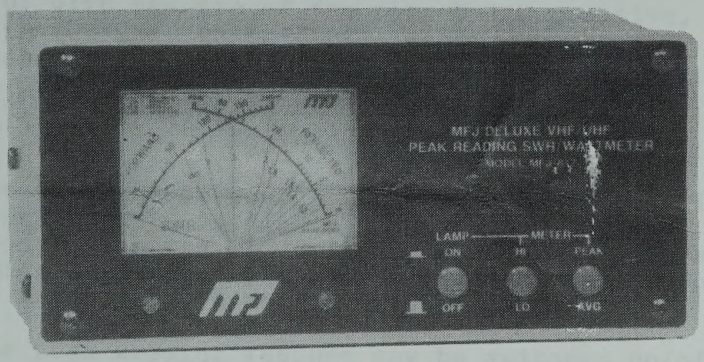

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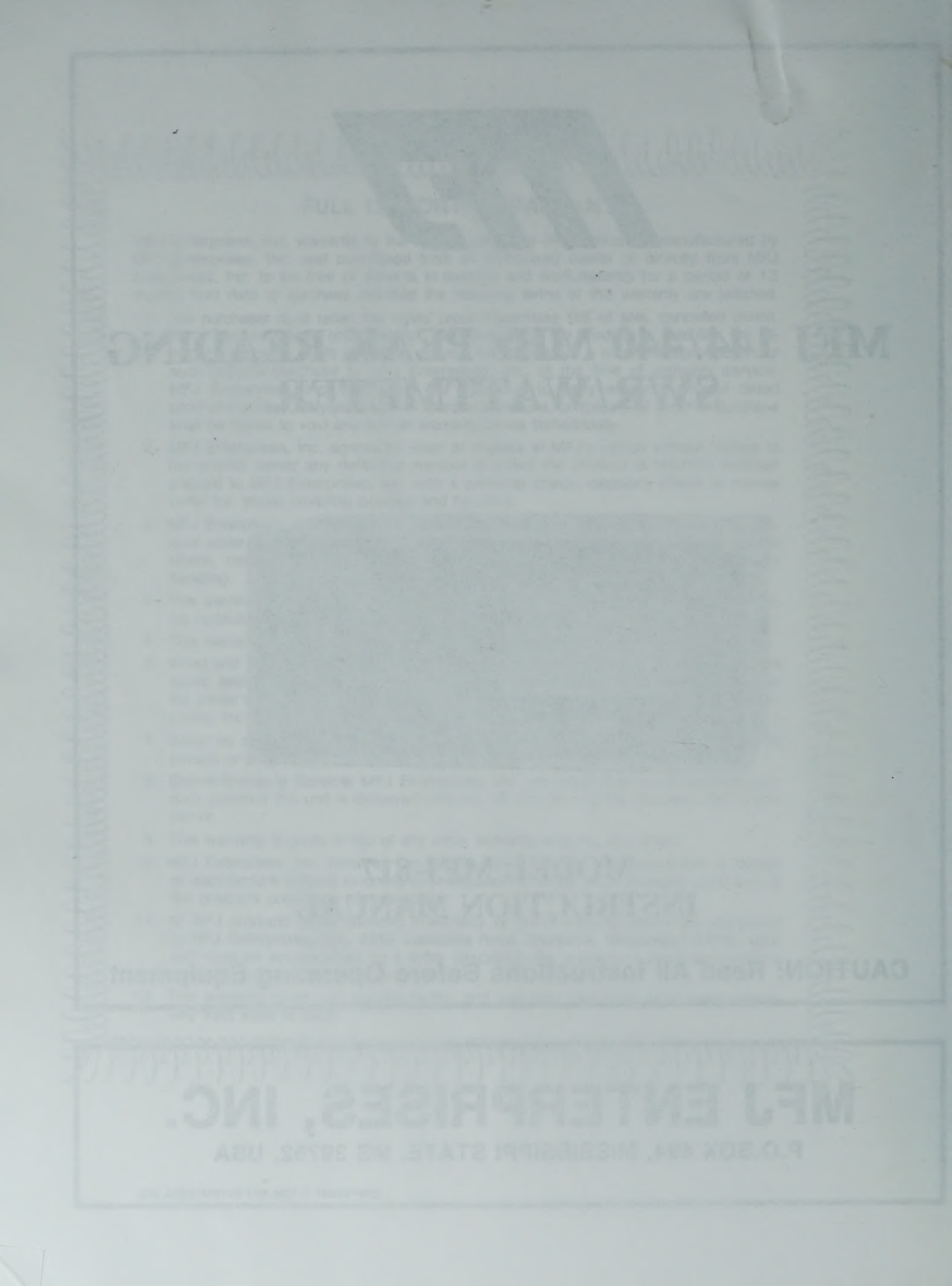

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7. Next set the push button for the HIGH power scale. Transmit about 20 watts as indicated on the reference meter. Adjust trimpot #3 to set 20 watts on the reflected scale.
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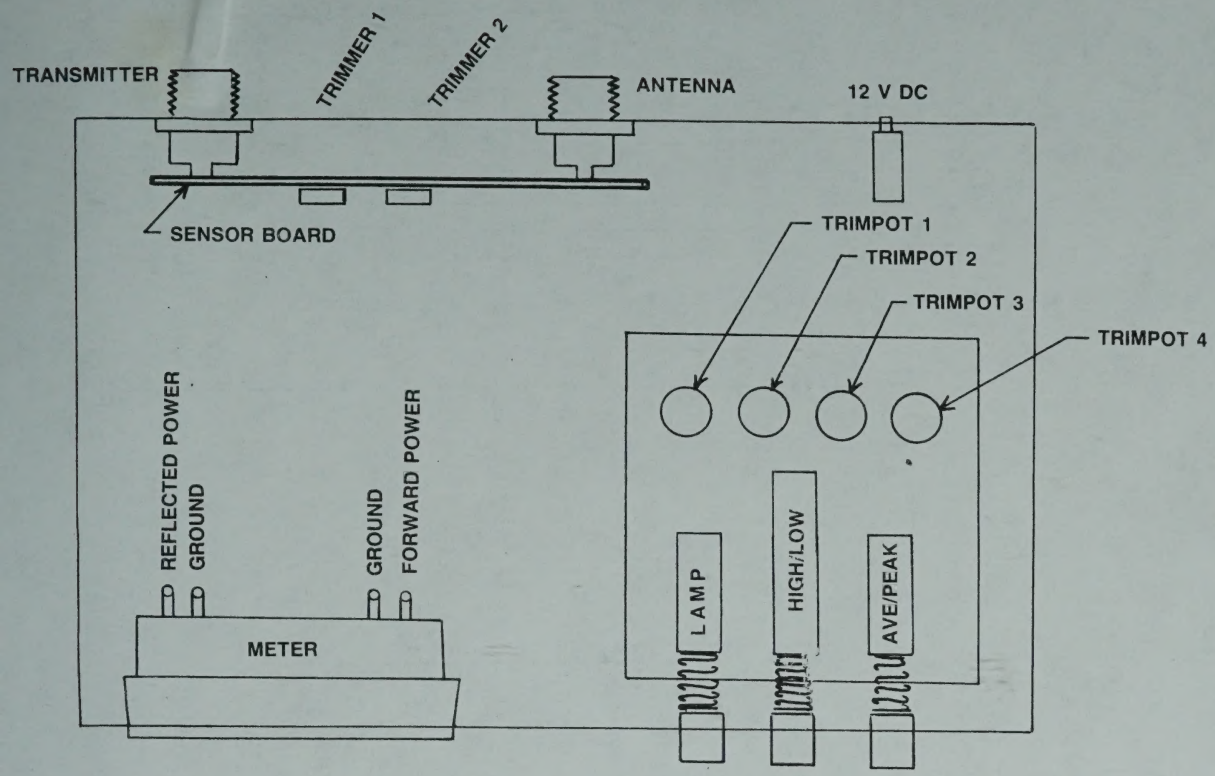

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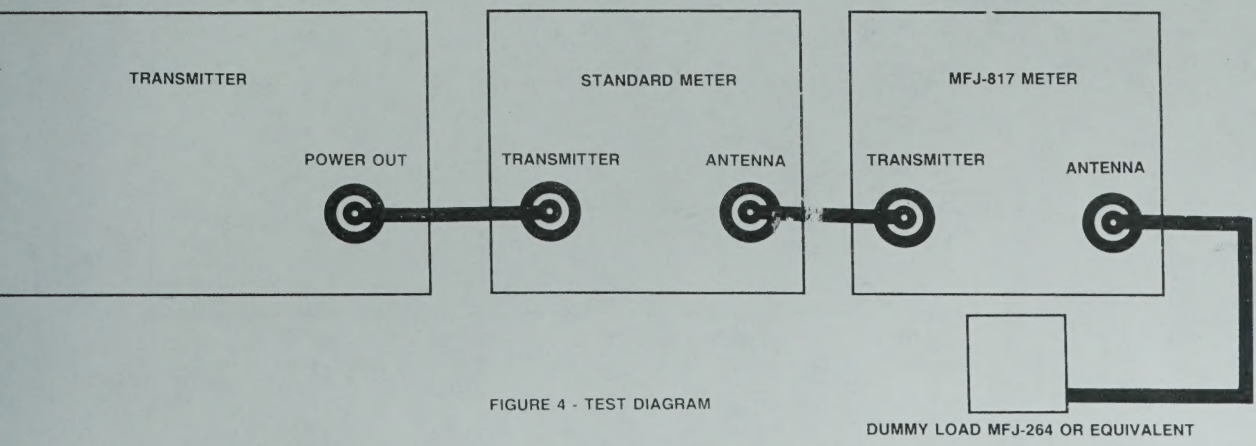

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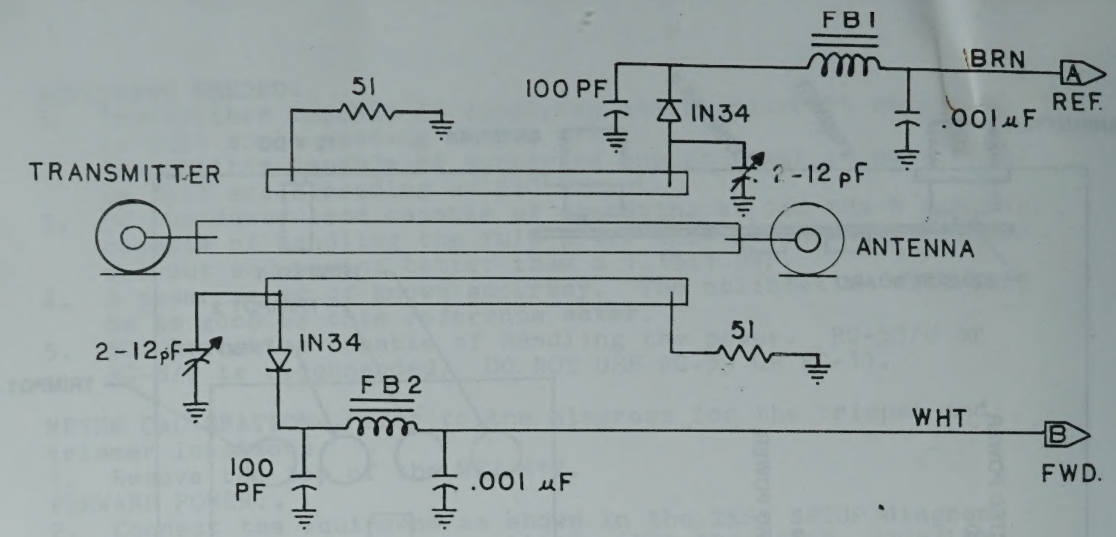

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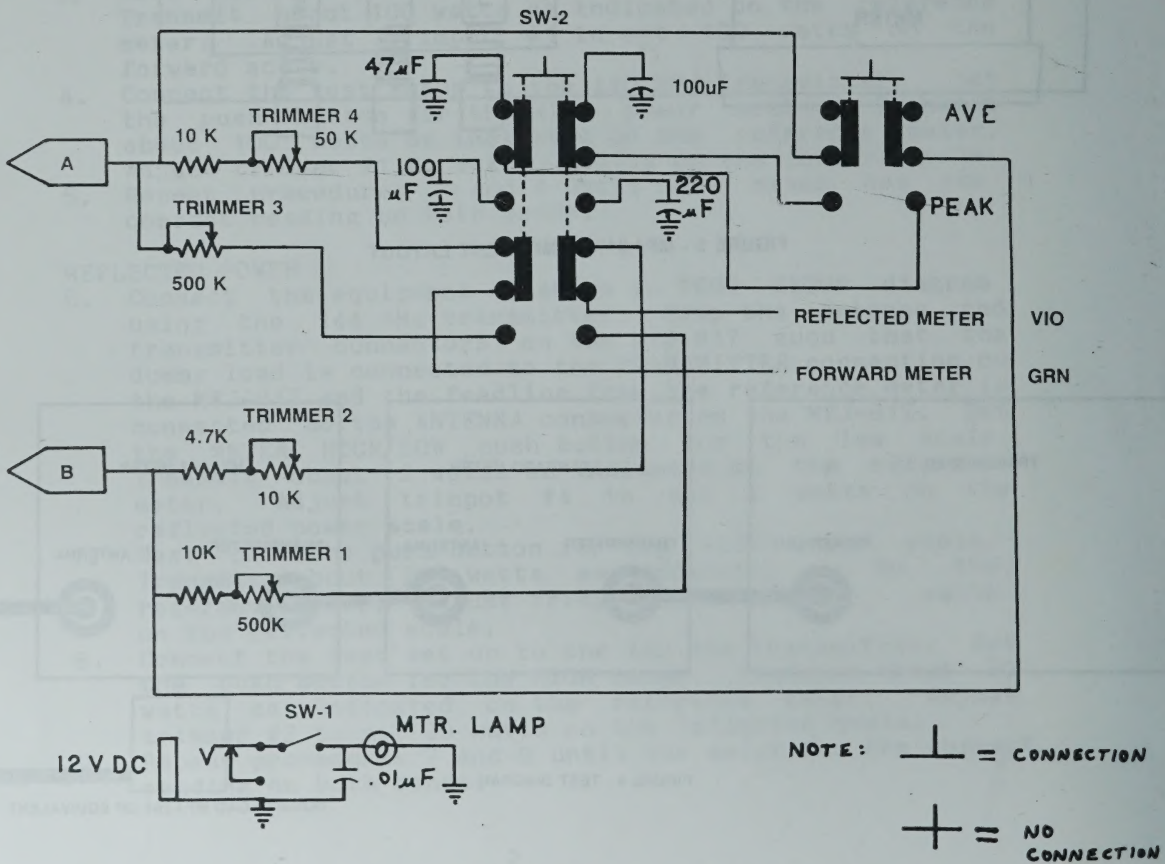

FIGURE 2 - MFJ-817 METER BOARD